iPump 562

Digital Media Server

WEGENER®

iPump 562

Digital Media Server User's Manual

800092-01 Rev. A

A proven world leader in digital video, audio & broadcast data systems, **WEGENER's** management system is certified to **ISO 9001:2000**.

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The **WEGENER iPump 562** is approved under **FCC Part 15B Class A**, **UL/C-UL1950 3rd Edition**, and **CE [EN60950, EN55022(94)**, and **EN55024(98)]**.

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CHAPTER 1 GENERAL INFORMATION

1.1 Manual Overview

This manual provides instructions and reference information for the proper installation and operation of the **WEGENER iPump 562**.

The manual is divided into the following chapters and appendices:

1. **General Information** - A description of the product, its functions and specifications, and a glossary of terms.
2. **Installation** - Procedures and information for the correct and safe installation.
3. **Operation** - Instructions on starting and operating the product.
4. **Search Functions** - Information on settings, pararmeters, modes, and signal monitoring.
5. **Customer Service** - Our warranty and information about obtaining help.

Appendix 1 - Terminal Diagterm Commands.

Appendix 2 - Menu Tree of LCD navigation.

Appendix 3 - RMA Request Form.

An **Index** of keywords is also provided to help you quickly locate needed information.

Please e-mail any suggestions or comments concerning this manual to ***manuals@wegener.com***. If you prefer to post through the mail, please send your comments to the address below. If you have substantial or complex changes to recommend, our preference is that you copy the page(s) in question, mark your changes on that copy, and fax or mail us the copy. We always appreciate constructive criticism.

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1.2 Product Overview

Digital Media Sever

The **iPump 562** Digital Media Sever is an advanced multimedia appliance that allows simple, efficient management of both live and recorded digital video, audio and data content. The single unit receives, decodes and plays out broadcast quality transmission using DVB-S2 modulation and MPEG-4/H.264 video compression saving 40-70% bandwidth utilization. The extra bandwidth may be used to launch additional video and data services. An integrated **Compel** network control offers flexibility and power to manage a mixed network of WEGENER servers. It also facilitates global deployment by supporting both, PAL and NTSC video.

Features and Options

Some of the features and options of **iPump 562** are highlighted below.

- Optimize bandwidth utilization by decoding MPEG-2 and MPEG-4/H.264 compression
- Save bandwidth with compliance to DVB-S2 QPSK /8PSK & DBV-S modulations
- Deploy in global markets by employing PAL and NTSC video formats
- Provide viewing options for both, HD and SD audiences
- Play out media files and play lists received from **Compel** uplink (Un-timed)
- Broadcast in multiple language by configuring four audio ports as mono or stereo
- Provide Subtitling, Tele-text services and Text "Crawling"
- Support Closed Captioning Line 21 with ATSC and Divicom formats
- Switch seamlessly between media sources ("Splicing")
- Simultaneously play media while receiving file downloads
- Insure integrity of files downloaded over satellite from uplink using Assured File Delivery (AFD)
- Decode LAN-based MPEG-2 and H.264 transport stream
- Enhance control operations using two Relay outputs and one Contact Closure input
- Print on Serial Port the text messages received form **Compel**
- Monitor using SNMP Protocol
- Digital audio/video output on HDMI with HDCP copy protection
- Digital audio output on S/PDIF (PCM and Dolby Digital)
- One HD component video and two composite video outputs
- Option for 4-RF ports and Universal or Standard LNB DC Power on RF Port 1
- Allow local control of OSD menu using Remote IR (optional)
- Save footprint with 1RU rack-mount or desktop chassis and a universal power supply

The **iPump 562** has integral support for the following **Compel** features:

- **Compel** Satellite network control and **Compel**/CA Conditional Access
- Internal SIM smartcard accommodating **Compel** CA cipher
- Audio level controlled through **Compel** network
- Field-upgradeable software downloads over RF Network using **Compel**

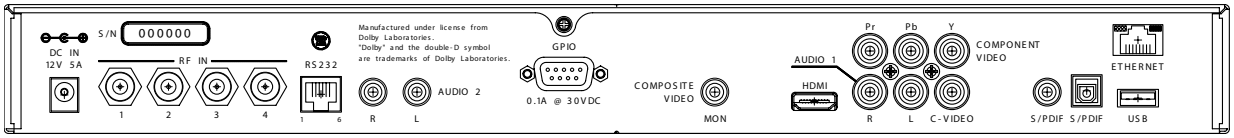
Compel™ Network Control

Compel gives you the power to manage a network of **iPump 562**s and other Unity IRDs with unparalleled functionality. With its unique network management features, such as grouping, receiver control and scheduling, the operator can command individual groups of receivers to switch, tune, or "output" video or data targeted specifically for that one receiver or group of receivers. This ability can be utilized for unequalled disaster recovery for business critical operations.

1.3 iPump 562 Product Specifications

Rear Panel View

Figure 1.1: iPump 562 Rear Panel



Rear Panel Connections

The **iPump 562** rear panel provides following connections:

Table 1.1: iPump 562 Interconnect Descriptions

Port / Signal	Connector Type	Description
DC IN	M Power Jack	+12 V DC 5 A
RF Switch IN - Port 1	F	950 to 2150 MHz signal accepted; Universal/Std Pwr
RF Switch IN - Port 2, 3, 4	F	950 to 2150 MHz signal accepted; No LNB power
RS-232 Port	RJ-12	Serial Asynchronous for terminal, printer or Aux Data
Audio OUT 1 (R&L)	2 RCA Phone Jacks	Audio stereo
Audio OUT 2 (R&L)	2 RCA Phone Jacks	Audio stereo
Composite Video	RCS Phone Jack	Composite Video Monitor NTSC or PAL at 1 Vp-p
C-Video	RCS Phone Jack	C-Video NTSC or PAL at 1 Vp-p
Component Video	3 RCS Phone Jacks	Component HD/SD Video YPbPr
HDMI	Type A receptable	High Definition Multimedia Interface (Digital A/V)
S/PDIF	RCA Phono Jack	S/PDIF Coax Digital Audio
S/PDIF	Optical TosLink	S/PDIF Fiber Digital Audio
ETHERNET	RJ-45	ETHERNET 10/100 BaseT
USB	USB	USB V2.0 port

External Input/Output Interfaces

The details on each of the interfaces are described below:

Table 1.2: iPump 562 External Input/Output Interfaces

External Input/Output Interfaces		
RF		
Connector	**Input/Output**	**Description**
4 RF Inputs from LNB	Port 1 I/O; Port 2-4 Input	Port 1 Universal/ Standard LNB **Port 2-4 No LNB** Voltage
Component Video		
Connector	**Input/Output**	**Description**
Component Y	Output	Green RCA
Component Pb	Output	Blue RCA
Component Pr	Output	Red RCA
Composite Video		
Connector	**Input/Output**	**Description**
Composite Video MON	Output	Yellow RCA

External Input/Output Interfaces		
C-Video	Output	Yellow RCA
Audio 1 and 2 (two analog audio ports)		
Connector	**Input/Output**	**Description**
Right Audio	Output	Red RCA Unbalanced
Left Audio	Output	White RCA Unbalanced
S/PDIF Digital Audio		
Connector	**Input/Output**	**Description**
1	Output	Coax/Electrical
2	Output	TosLink/Optical
HDMI Digital Audio/Video		
Connector	**Input/Output**	**Description**
HDMI	I/O	Digital Audio/Video; HDCP Copy Protection; Display Data Channel
USB		
Connector	**Input/Output**	**Description**
1	I/O	USB V2.0 Port
10/100 BaseT (RJ-49) Ethernet Auto Detect		
Connector Pin	**Input/Output**	**Description**
1	Output	TXD +
2	Output	TXD -
3	Input	RXD +
4	NA	No Connection
5	NA	No Connection
6	Input	RXD -
7	NA	No Connection
8	NA	No Connection
RS-232 Serial Port Phone Jack		
Connector Pin	**Input/Output**	**Description**
1	NA	No Connection
2	Output	RXDB Data
3	Input	TXDB Data
4	NA	No Connection
5	NA	Ground
6	NA	+5V DC

External Input/Output Interfaces		
Contact Closure GPIO DB-9 Female		
Connector Pin	**Input/Output**	**Description**
1		Alarm Common
2		Alarm Normally Open
3		Contact Closure Common
4		No Connection
5	Input	Contact Closure GPIO Input (Factory use only)
6		Alarm Normally Closed
7		Contact Closure Normally Closed
8		Contact Closure Normally Open
9	NA	Ground
Power DC IN 12 V 5 A		
Connector	**Input/Output**	**Description**
Standard IEC	Input	115 or 230 V AC

Technical Specifications

The following tables detail the technical specifications for the **iPump 562**.

RF Characteristics

Table 1.3: iPump 562 RF Characteristics

RF Characteristics	
RF Input	Connector Type F
Input Frequency Range	950 - 2150 MHz
Input Level Range	-25 to -65dBm
Maximum Aggregate Input Power	-8 dBm at max input signal
Input Impedance	75 ohms
Input VSWR	< 2.5:1
Input Noise Figure	8 dB MAX at minimum input level
L.O. Leakage at Input	< -55 dBm
Demodulator **DVB-S QPSK** **DVB-S2 QPSK** **DVB-S2, 8PSK**	FEC Rate 1/2, 2/3, 3/4, 5/6, or 7/8 (1.0 to 45 MBaud) ½, 2/3, ¾, 4/5, 5/6, 7/8, 9/10 (2 to 30 MBaud) 2/3, ¾, 5/6, 8/9, 9/10 (3 to 30 MBaud) Convert Symbol Rate Fs to Transport Rate Ft by: (2R*Fs)*(188/204)=Ft, where 'R' is inner FEC code ratio, either R=1/2, 2/3, 3/4, 5/6, or 7/8.
Max Symbol-rate	S2 = 30 Msps; S1 = 45 Mbps

RF Characteristics	
Aggregate MPEG Transport Rate	8PSK = 80.346; S1 QPSK = TBD 2.5 to 48.38 Mbps (limited by max symbol-rate and inner FEC chosen), defined for 188-byte MPEG transport packets
Max/Min Eb/No @ Video Threshold	S1QPSK: FEC: Eb/No (dB) 1/2: 4.5 2/3: 5.0 3/4: 5.5 5/6: 6.0 7/8: 6.4 S2QPSK: FEC: Eb/No (dB) 1/2: 1.5 3/5: 2.0 2/3: 2.4 3/4: 2.8 4/5: 3.2 5/6: 3.5 8/9: 4.2 9/10: 4.4 S28PSK: FEC: Eb/No (dB) 3/5: 3.5 2/3: 4.1 3/4: 4.9 5/6: 5.9 8/9: 6.9 9/10: 7.2

Video Decoder

Table 1.4: iPump 562 Video Decoder

Video Decoder	
Compression System	MPEG-2/MPEG-4 and H.264 - Standard and High Definition
Analog (Composite) Output Formats	NTSC or PAL

Video Decoder	
Supported Digital Video Resolutions	SD: 480I / 29.97 480P / 59.94 576I / 25 576P / 50 Horizontal: 720, 704, 640, 544, 528, 480 and 352 HD: 1080I / 29.97 Horizontal: 1920, 1440, 1280, and 960 1080I / 25 Horizontal: 1920, 1440, 1280, and 960 720P / 50 Horizontal: 1280, 960, and 640 720P / 59.94 Horizontal: 1280, 960, and 640
Supported Color Space Sampling Scheme	4:2:0 All Supported Formats 4:2:2 SD Formats

Composite Video Output

Table 1.5: iPump 562 Composite Video Output

Composite Video Output	
Line 21 Closed captioning	Divicom and ATSC EIA-608-B
TELETEXT	CCIR/ITU-R Broadcast Teletext System B
Output Level	1.0 Vp-p, < 5% Deviation
Output Impedance	75 Ohms
Multi-burst Frequency Response	NTSC: From 0.5 to 4.2 MHz: < +0/-3 dB PAL: From 0.5 to 4.2 / 5.8 MHz: < +0/-3
Differential Gain	< 3%
Differential Phase	< 3 Degrees
Line Time W-form Distortion	< 2% p-p
Field Time W-form Distortion	< 2% p-p

Component Video Output

All specs below are presumed for NTSC and PAL unless otherwise specified. Tested per RS250C. Tested at max resolution with ~6 Mbps PES rate.

Table 1.6: iPump 562 Component Video Output

Component Video Output	
Line 21 Closed captioning	Divicom and ATSC EIA-608-B
TELETEXT	CCIR/ITU-R Broadcast Teletext System B
Output Level	Y = 1 Vp-p, Pb/Pr = 700mVp-p
Output Impedance	75 Ohms
Multi-burst Frequency Response	NTSC: From 0.5 to 4.2 MHz: < +0/-3 dB PAL: From 0.5 to 4.2 / 5.8 MHz: < +0/-3
Differential Gain	< 3%
Differential Phase	< 3 Degrees
Line Time W-form Distortion	< 2% p-p
Field Time W-form Distortion	< 2% p-p

Table 1.7: iPump 562 Audio Decoder

Audio Decoder	
Compression System	MPEG-1 Layer 2, Dolby Digital ® (or AC-3)
Sample Rates Supported	44.1 and 48 kHz

Unbalanced Audio Output

Measured at 256 kbps audio PES rate, dual mono mode.

Table 1.8: iPump 562 Unbalanced Audio Output

Unbalanced Audio Output	
Output level adjust range	0 to -14 dB attenuation from Output Level shown above
Output Level-MAX PPL	+9.0 +/- 0.5 dBu, 0 dB level, RCA Phono Jack
Impedance	Unbalanced: < 1000 Ohms

Audio Parameters

Table 1.9: iPump 562 Audio Parameters

Audio Parameters	
Frequency Response	20Hz to 20 kHz, +0.5/-2.0 dB 50Hz to 15 kHz, +0.5/-1.0/-0.5 dB
Harmonic Distortion (1 kHz test-tone,1 dB below PPL)	< 0.5%
S/N Ratio	> 68 dB (22 Hz to 20 KHz) unweighted
Dynamic Range	16 bits
A/V Sync	< +/- 50 mS error

Serial Port

Table 1.10: iPump 562 Serial Port

Serial Port	
RS-232	RJ11
Selectable services	Auxiliary character-based async output E-mail character-based async output Terminal monitoring and control
Baud Rates	2400 to 115200 baud
Formatting	8 data-bits, one start, one stop-bit, half-duplex, no parity

Local Hard Disk Driver (HDD)

Table 1.11: iPump 562 HDD

Local Hard Disk Driver (HDD)	
Storage Capacity	8 GB
Interface	IDE

LNB DC Power (RF Port 1 ONLY)

Universal and Standard LNB Supported. See Astra PTS403d.

Table 1.12: iPump 562 LNB DC Power (RF Port 1 ONLY)

LNB DC Power (RF Port 1 ONLY)	
Voltage	Standard: 18VDC Universal: 13 or 18 VDC, for LNB polarity selection
22 KHz tone	22 kHZ control tone, for LNB DRO baud selection, Universal mode
Current	350 mA max
Short-circuit protection	Thermal Fuse and Foldback Regulator

AC Power

Table 1.13: iPump 562 AC Power

AC Power	
Voltage	External 100-240 auto-detect/selected
Frequency	50 or 60 Hz +/-2%
Power consumption	30 watts with full LNB DC load

Physical Characteristics

Table 1.14: iPump 562 Physical Characteristics

Physical Characteristics	
Chassis Height	1 RU for desktop - 1RU using supplied rack ears
Chassis Width	16.5 inches - with optional rack ears - 19 inches
Chassis Depth	11.5 inches
Weight	7.5 lbs.
Front/Rear Panel Labeling	
Chassis Finish	Silver powder-coat, fine texture
Rear-panel silk-screen color	Gray lettering per PMS-427C
Front Panel	Plastic snap-on bezel with 5 button switches embedded in label

1.4 Safety Summary

The **iPump 562** is designed for safe use with few special precautions required of the user. The following items are basic precautions to use when installing and working with the **iPump 562** unit:

Do not open the **iPump 562**'s chassis cover.

The **iPump 562** incorporates security labels over some of the screws. There are no user serviceable components within the IRD. Tampering with the security labels, or opening the unit, will void your warranty. If you have questions, contact the **WEGENER Customer Support Department** at the address or phone (fax) numbers listed in **Chapter 5 Customer Service**, of this manual.

CHAPTER 2 INSTALLATION

This chapter provides instructions on unpacking, mounting, and connecting your **iPump 562** as well as connector information including detailed pinouts.

2.1 Unpacking and Inspection

Carefully unpack the unit and its ac power cord and inspect for obvious signs of physical damage that might have occurred during shipment. Any damage claims must be reported to the carrier immediately. Be sure to check the package contents carefully for important documents and materials.

Note: Please save the packing materials and original shipping containers in case you must later return the unit for repair. Packing these units in other containers in such a way that they are damaged will void your warranty.

2.2 Location and Mounting

The **iPump 562** may be mounted in a standard 19-inch equipment rack or set up for desktop operation. In either location, maintain a clean, dry environment for the **iPump 562**.

Precautions

FCC-Mandated Suppression of Radio Frequency Emissions

WARNING This is a Class A product. In a domestic environment this product may cause radio interference for which the user may need to take mitigating action.

If the Ethernet port has a cable connected to it, that cable must be properly shielded and grounded to minimize RF emissions that could interfere with nearby equipment.

DANGER To avoid damage to the **iPump 562** unit and other equipment, or personal injury, the following items should be strictly observed.

Elevated Ambient Operating Temperatures in Rack-Mounted Units

When equipment is installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the room's ambient temperature. Therefore, consideration should be given to the ambient air temperature within the rack (not just inside the room) when deciding if the maximum recommended ambient operating temperature (TMRA) is met or exceeded.

Reduced Air Flow

Equipment should be installed such that the airflow required for safe operation of the equipment is not compromised. The **iPump 562** may be arranged in a rack without empty spaces between units, if heat buildup is prevented by ensuring that the side vents remain unblocked, and that there is adequate clearance around the vent holes.

Mechanical Loading

Rack-mounted equipment should be installed in such a way that a hazardous condition is not produced by uneven loading. The **iPump 562** unit is not very heavy, but total rack

loading must be considered. Also, do not rest any unsupported equipment on a rack-mounted **iPump 562** unit.

Circuit Overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits could have on overcurrent protection and supply wiring. Ensure that the total rack or breaker power consumption does not exceed the limits of the AC branch circuit. Appropriate consideration of equipment ratings should be used when addressing this concern.

Reliable Earthing

When connecting the **iPump 562** unit to the power supply, review the ratings of all equipment in the circuit to ensure that the branch circuit, as well as the power source, will not be overloaded. Also make sure that the unit is properly grounded and/or that a protected power strip is used to attach it to the power supply

Rack Mounting

The **iPump 562** unit should be installed in such a way that a half-inch clearance is allowed on each side and a quarter-inch on the top to ensure adequate air flow. Ensure that a hazardous condition is not produced by uneven loading, or by resting any unsupported equipment on a rack-mounted **iPump 562** unit.

Parts for the **iPump 562** unit include 2 angle rack mount brackets and 4 rubber feet. For rack mounting, do not attach the rubber feet as they interfere with the rack mounting.

1. Remove the 2 screws from the left and right sides of the unit.
2. Insert the angle brackets into the left and right sides of the unit ensuring that the screw holes for the unit and brackets are aligned.
3. Secure the brackets by re-inserting the screws through the brackets and unit.
4. Install the unit onto the rack.

Note: The front brackets must be secured to the rack. If the front brackets are left unsecured, the unit may shift forward and fall from the rack, and may result in personal injury and/or damage to the equipment. The internal temperature of the rack should not exceed 40^{o} C.

Desktop Installation

Parts for the **iPump 562** unit include 2 angle rack mount brackets and 4 rubber feet. For desktop installation, do not attach the brackets.

1. Attach the 4 rubber feet onto the indented areas at the bottom of the unit.
2. Place the unit on a flat surface where it will not be subject to spills or impacts.
3. Route cables to the unit so that they will not be hit or pulled, causing damage to the connectors or to the unit itself. Ensure a sufficient flow of cool air so that the unit's operating ambient temperature range is not exceeded.

CHAPTER 3 OPERATION

This chapter provides information and procedures for powering up, operating the unit, upgrading software and tracking alarm conditions. Information on four-port RF option and Universal LNB Power is also presented.

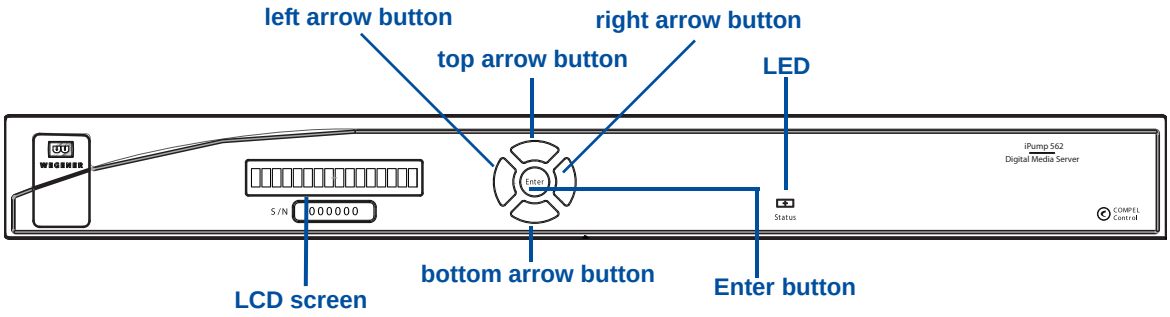
3.1 Controlling and Monitoring

The IRD can be controlled via **Compel** network, front-panel using push-buttons and OSD (On-Screen Display) or LCD menus or the diagterm terminal using commands. The **Compel** is generally the primary method of controlling an IR. See the **Compel** Manual for a complete explanation.

Front Panel Controls And Indicators

The **iPump 562** is set up at the factory. However, you can customize the settings to fit your system using the front-panel push-buttons and LCD screens or OSD menus. You may also view those settings and various status information using the front-panel LCD, LED or OSD screens.

Figure 3.1: iPump 562 Front Panel



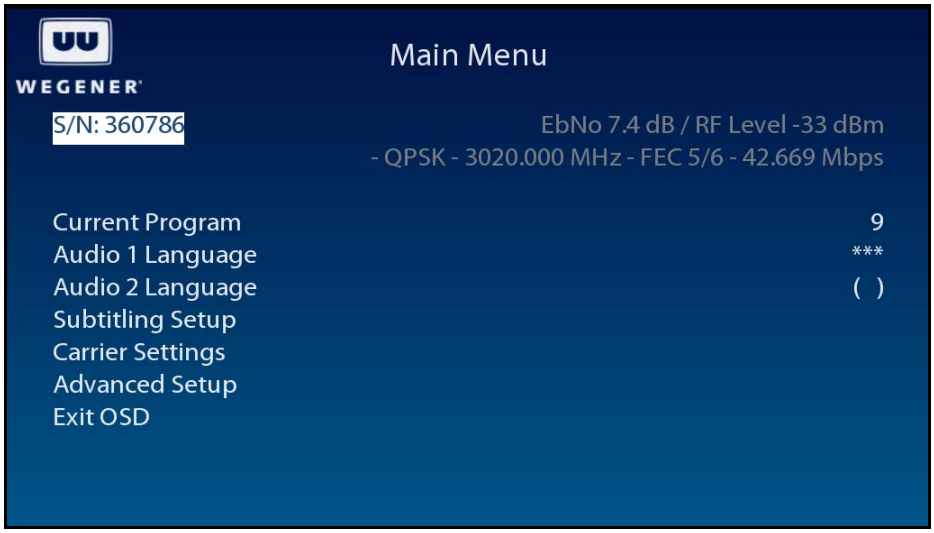
LCD

Normally, the LCD on the front-panel displays Unit label and currently tuned channel parameters for information. Pressing **Enter** on the front-panel activates the LCD backlight. When the OSD menu is active, the LCD on the front-panel displays the OSD item currently selected. When certain status conditions, such as loss of signal occur, the LCD automatically gets activated with illuminated backlight and displays relevant information on the condition.

OSD

The On-Screen Display (OSD) menus are used to configure settings or monitor the status of the IRD. The OSD information displays white text on blue background overlying 80% of the video output viewed on a monitor connected to any of the video ports. The OSD screens are activated (displayed on video monitor) and the menus can be navigated using the push-buttons on the front-panel. On menus, a selected item is displayed with black text on white background. Following example represents one of the OSD menus available on **iPump 562**.

Figure 3.2: OSD Main Menu



Push-buttons

Use the arrow buttons and **Enter** on the front panel to navigate and edit the fields on LCD and OSD menus. Any of the push buttons activate OSD and LCD. The arrow buttons are used to navigate through menus and to either change or display items to set desired options for the IRD. The **Enter** button is generally used to select menu items on LCD and OSD menus. Selectable fields allow you to change the whole parameter from pre-determined options. Editable fields allow you to change each digit of the parameter. Once a field is updated, you must select Activate and Exit on the submenu and then press **Enter** to update the value of the field. Before pressing **Enter**, you may go back to any field and correct it prior to acceptance. The left arrow button usually steps back a menu.

Table 3.1: Menu Navigation using Push-buttons

Button	Actions		
	Main Menu	Submenu	Edit Mode
Enter	selects submenu or drop-down list	goes to editable field	accepts changes
right arrow	no action	no action	moves cursor to right
left arrow	exits **OSD**	goes to previous menu level	moves cursor to left or abandon changes
up arrow	goes to next or previous menu item	goes to next or previous menu item	increases value of selected item
down arrow	goes to next or previous menu item	goes to next or previous menu item	decreases value of selected item

LED

Upon power up, the IRD initializes all system components and supplies an operational status. A steady Green LED indicates that it is locked on a carrier and is capable of producing output (Audio/Video/Data).

In case of problems, the LED flashes Red for alarm conditions or Amber for warning conditions. In general, alarms indicate that the unit cannot produce output, while Warnings

indicate that, although output is being produced, there is a problem that could require attention. The most common conditions that produce alarms or warnings are listed in **Table 3.2**.

Table 3.2: iPump 562 Front Panel Status LED Alarm and Warning Indications

Mode	LED Status	Condition
Alarm	Red blink = 2	No carrier
	Red blink = 3	No RF signal
	Red blink = 4	In recovery
	Red blink = 5	Eb/No alarm
	Red blink = 11	Not authorized
Warning	Amber blink = 1	No response from SEC_MICRO
	Amber blink = 2	Marginal Eb/No
	Amber blink = 4	Selected audio not available
	Amber blink = 5	RF too low
	Amber blink = 6	RF too high
	Amber blink = 7	Application download failed
Normal	Green	Normal operation

Diagterm Terminal (Commands)

The Serial Port (RS-232) can be used to connect to a terminal console. After the IRD is powered on, a diagterm command-line interface (CLI) can be used to monitor and control the system. For more information on diagterm and syntax of the individual commands, please see an appendix. **Figure 3.3** illustrates the **Help** screen on the diagterm terminal.

Figure 3.3: Diagterm Terminal Help Screen

```
Welcome to UnifiedSoftware's serial terminal.
       Type "help" to list available commands.

OK>help

========= [ Groups   ] ======================================
  http            lan             output          rbds
  rd              rp              r               sigma
  snmp

========= [ Commands ] ======================================

  abortrec        abort           adds            ap2
  ap              audatten        audroute        contentaccess
  dels            errors          ifconfig        lnbpwr
  lnbselect       margin          movep           permch
  perm            port            re              savep
  service         setlnb          settimeout      set
  snr             spdif           sp              tempch
  temp

Type "help [group]" "help [command]" or "help help" for more info.

OK>
```

Compel™ System Control

The **iPump 562** IRD is most often controlled via the **WEGENER Compel Control System**. This system is managed at the uplink site, sending a control stream with the usual audio and video data streams. The **Compel System** addresses units, and commands them to perform various functions.

Among its functions is the ability to enable or limit aspects of local control. Also, **Compel** has the ability to mute the audio and video of an IRD if it is inadvertently tuned to a frequency it is not authorized to receive.

If an RF Switch option module is installed, **Compel** controls which of the four RF feeds is being processed. For more information on this, see the **Compel** Manual, or contact your service provider.

There are four levels of control via **Compel**. These levels are:

- No Local Control - Push-buttons disabled
- Read Only - No changes permitted
- Limited - Changes may be made to Carrier Presets (pre-loaded values) only
- Full - Full Local Control

3.2 Normal Functions

The **iPump 562** allows several functions for basic operation and optimum performance.

- Tune to a carrier
- Configure LNB options
- Monitor Signal Quality
- Set Subtitling
- Configure operating options:
  - Set Decoder options
  - Setup Audio
  - Set LAN IP Networking options
  - Set Terminal options
  - Set Printer options
  - Set User Relay
  - Set Date and Time information
  - Set Unit Label
  - Switch Application (to different software version)
- Monitor status information:
  - View Signal Quality
  - Query Networking History
  - Display LAN IP Network information
  - Find Software Version information
  - Clear Statistics used for diagnosis
- Play out play lists of media files

The functions listed above are illustrated below with instructions, OSD screens and other relevant information.

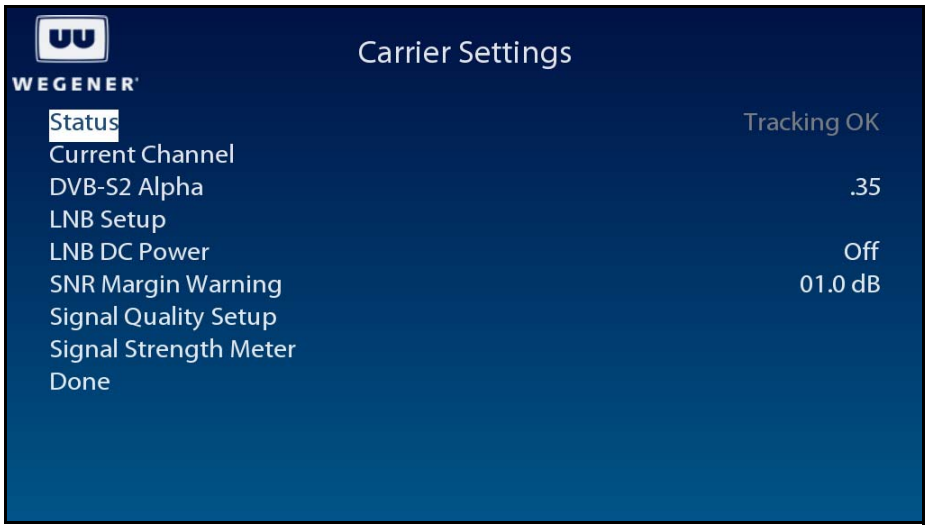
Tune to a carrier

Carrier Settings screen

Use following steps to display **Carrier Settings** screen on the OSD menu:

1. Press any push-button on the front-panel to display the **Main Menu**.
2. Press the down arrow button to select **Carrier Settings**.
3. Press **Enter**.
4. View the details as shown in **Figure 3.4**.

Figure 3.4: iPump 562 OSD Carrier Settings Screen



Notes:

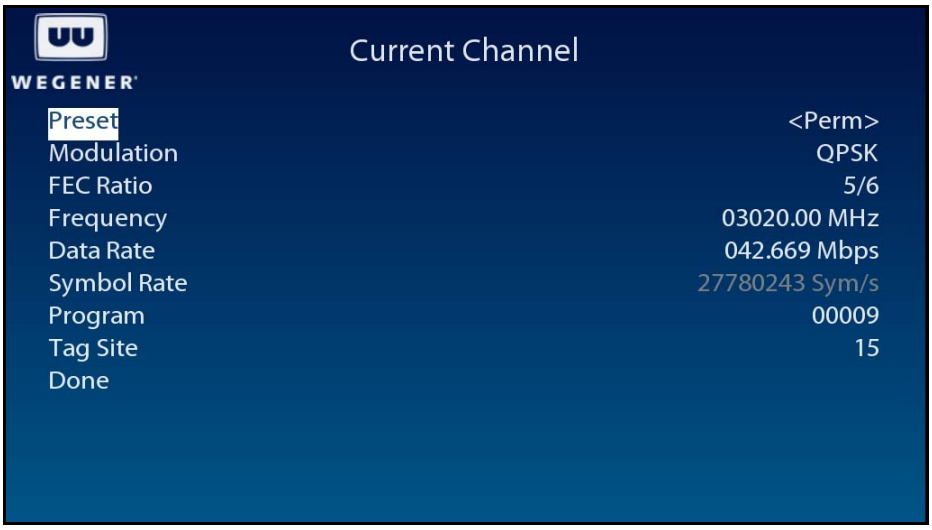
- The Status shall be displayed as Tracking OK if the unit is tuned to a carrier.
- Valid values for DVB-S2 are 0.35, 0.25 and 0.20.
- The LNB DC Power may be turned on or off.
- The SNR Margin Warning may be set with a desired threshold value in dB.

Current Channel screen

Use following steps to display **Current Channel** screen on the OSD menu:

1. From the Carrier Settings screen, press the down arrow button to select **Current Channel**.
2. Press **Enter** to display the Current Channel screen shown in **Figure 3.5**.
3. To navigate the screen, use the down arrow and **Enter** buttons to select an option. When the corresponding value of that option on the left is selected, use up or down buttons to set to the desired setting. Press **Enter** when done. Move to the next option using up or down button or left arrow to exit to the previous menu level.

Figure 3.5: iPump 562 OSD Current Channel Screen



Use the **Current Channel** screen to set or display the channel information.

Table 3.3: Channel Information Options

Option	Possible values	Comments
Preset	Perm, Command, Last Success or Current	Only Perm option allows other options to be set. The channel set using the **Compel** Command.
Modulation	QPSK/S2QPSK/S28PSK	-
FEC Ratio	1/2, 2/3, ¾, 5/6, 7/8	-
Frequency		
Data Rate		
Symbol Rate		Automatically calculated and displayed only
Program		Set to the desired program # in the carrier
Tag Site		The tag #15 is a special value

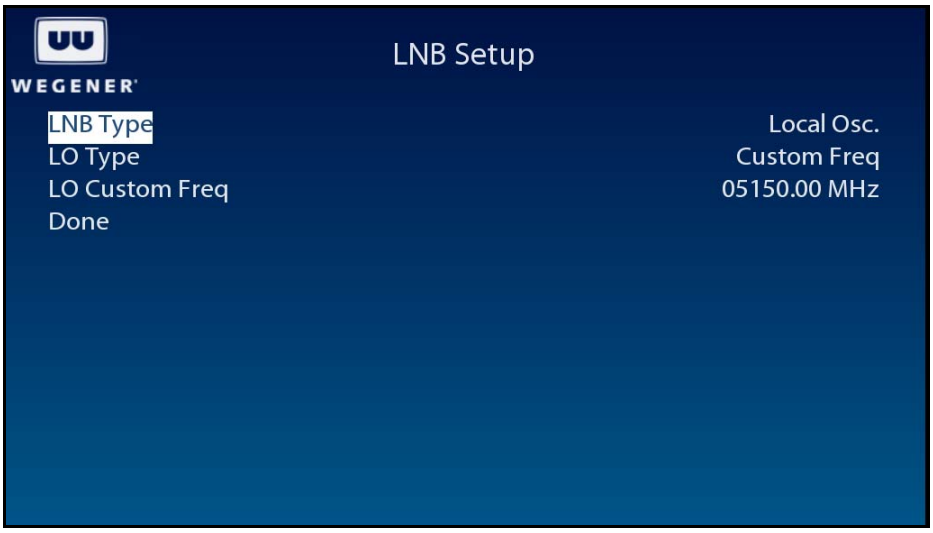
Configure LNB options

LNB Setup screen

Use following steps to display **LNB Setup** screen on the OSD menu:

1. Press any push-button on the front-panel to display the **Main Menu**.
2. Press the down arrow button to select **Carrier Settings**.
3. Press **Enter**.
4. Press the down arrow button to select **LNB Setup**.
5. Press **Enter**. **Figure 3.6** details the **LNB Setup** screen.
6. To navigate the screen, use down arrow and **Enter** to select an option. When the corresponding value of that option on the left is selected, use up or down buttons to set to the desired setting. Press **Enter** when done. Move to the next option using up or down button or left arrow to exit to the previous menu level.

Figure 3.6: iPump 562 OSD LNB Setup Screen



Use the **LNB Setup** screen to set and display the LNB configuration.

Table 3.4: LNB configuration options

Option	Possible values	Comments
LNB Type	Local Oscillator or Universal/ASTRA	Only Local Osc option allows other options to be set.
LO Type	Custom Freq., Std C-band, US Ku-band, Euro Low Ku-band or Euro Hi Ku-band	Only Custom Freq. option allows other options to be set.
LO Custom Freq.		

Monitor Signal Quality

Signal Quality Setup screen

Use following steps to display **Signal Quality Setup** screen on the OSD menu:

1. Press any push-button on the front-panel to display the **Main Menu**.
2. Press the down arrow button to select **Carrier Settings**.
3. Press **Enter**.
4. Press the down arrow button to select **Signal Quality Setup**.
5. Press **Enter** to display the **Signal Quality Setup** screen shown in **Figure 3.7**.

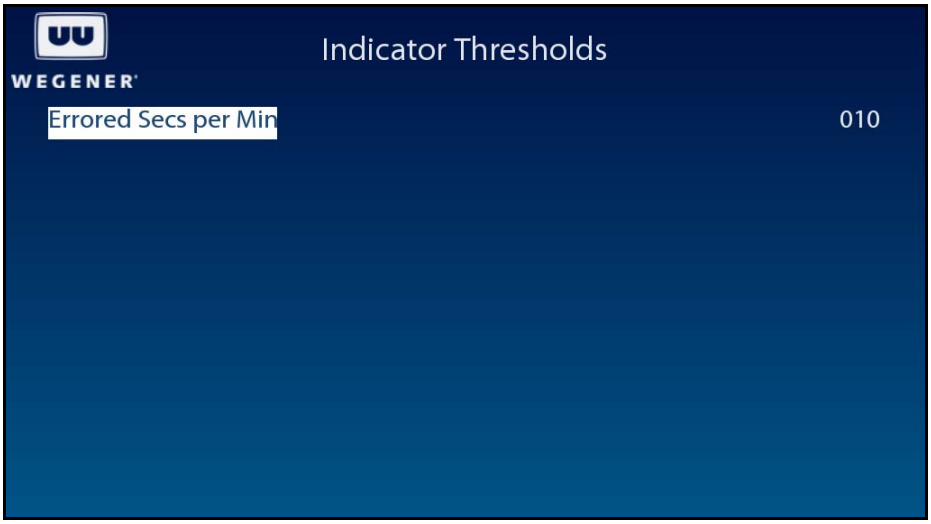
Figure 3.7: iPump 562 OSD Signal Quality Setup Screen

Indicator Threshold screen

Use following steps to display the **Indicator Threshold** screen on the OSD menu:

1. From the **Signal Quality Setup** screen, ensure that **Indicator Thresholds** is selected.
2. Press **Enter** to display the **Indicator Threshold** screen shown in **Figure 3.5**.
3. To navigate the screen, press **Enter** to highlight the value. Use up or down buttons to set to the desired setting. Press **Enter** when done. Use left arrow to exit to the previous menu level.

Figure 3.8: iPump 562 OSD Indicator Threshold Screen



Use the **Indicator Threshold** screen to set and display the warning condition.

Table 3.5: Indicator Threshold screen options

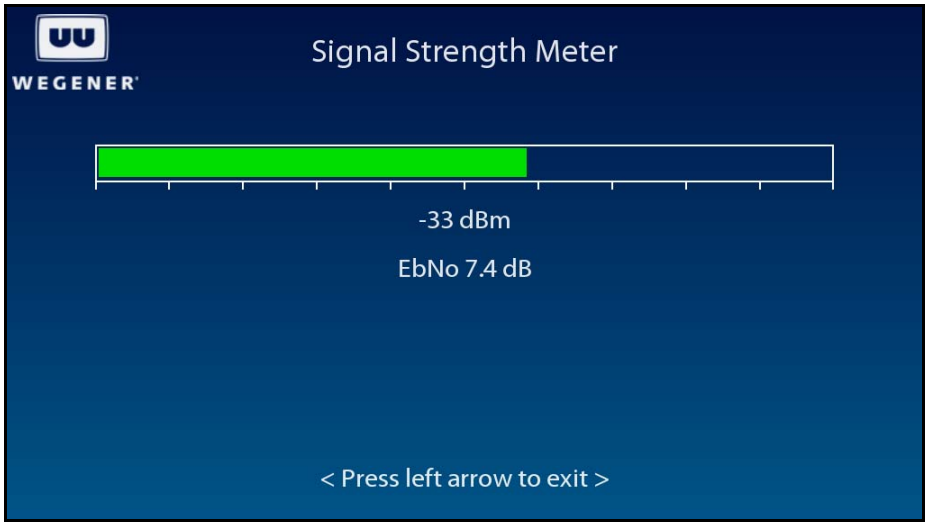
Option	Possible values	Comments
Errored Secs per Min	10 to 19	Set the threshold for how many errors per minutes before raising a warning condition.

Signal Strength Meter screen

Use following steps to display **Signal Strength Meter** screen on the OSD menu:

1. Press any push-button on the front-panel to display the **Main Menu**.
2. Press the down arrow button to select **Carrier Settings**.
3. Press **Enter**.
4. Press the down arrow button to select **Signal Strength Meter**.
5. Press **Enter** to view the screen as shown in **Figure 3.9**.

Figure 3.9: iPump 562 OSD Signal Strength Meter Screen



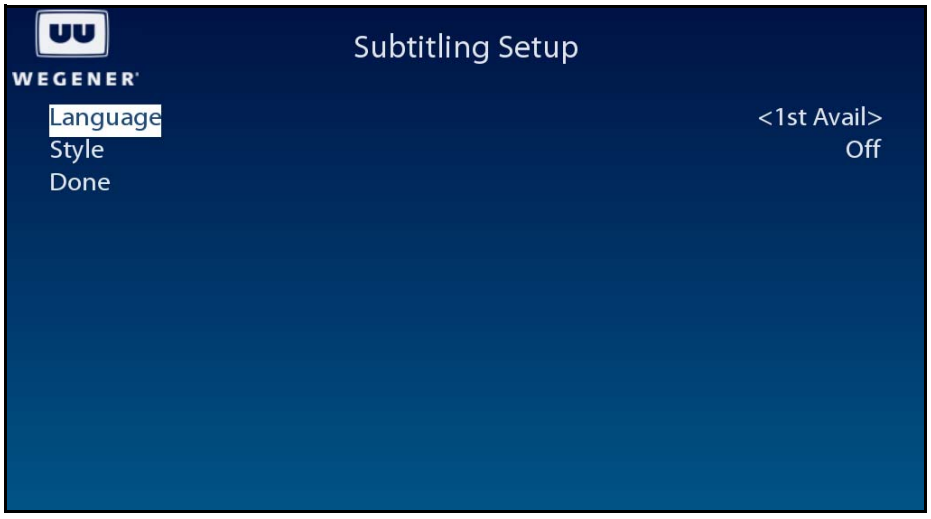
Set Subtitling options

Subtitling Setup screen

Use following steps to display **Subtitling Setup** screen on the OSD menu:

1. Press any push-button on the front-panel to display the **Main Menu**.
2. Press the down arrow button to select **Subtitling Setup**.
3. Press **Enter**.
4. View the details as shown in **Figure 3.10**.

Figure 3.10: iPump 562 OSD Subtitling Screen



Use the **Subtitling Setup** screen to set and display the Subtitling information.

Table 3.6: Subtitling Setup screen options

Option	Possible values
Language	English, French, Spanish or 1st Available
Style	Normal, Normal + Captioning or Off

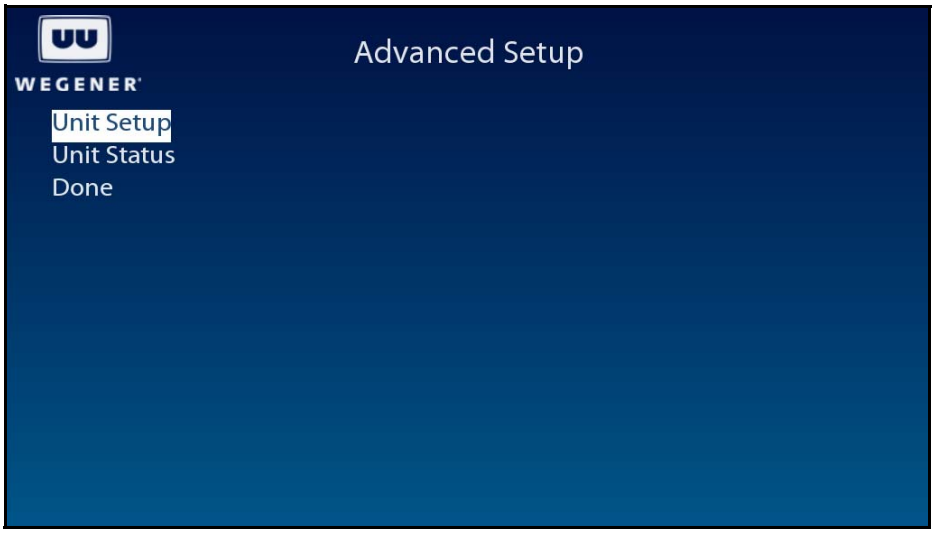
Configure the unit for operation

Advanced Setup screen

Use following steps to display **Advanced Setup** screen on the OSD menu:

1. Press any push-button on the front-panel to display the **Main Menu**.
2. Press the down arrow button to select **Advanced Setup**.
3. Press **Enter**.
4. View the details as shown in **Figure 3.11**.

Figure 3.11: iPump 562 OSD Advanced Setup

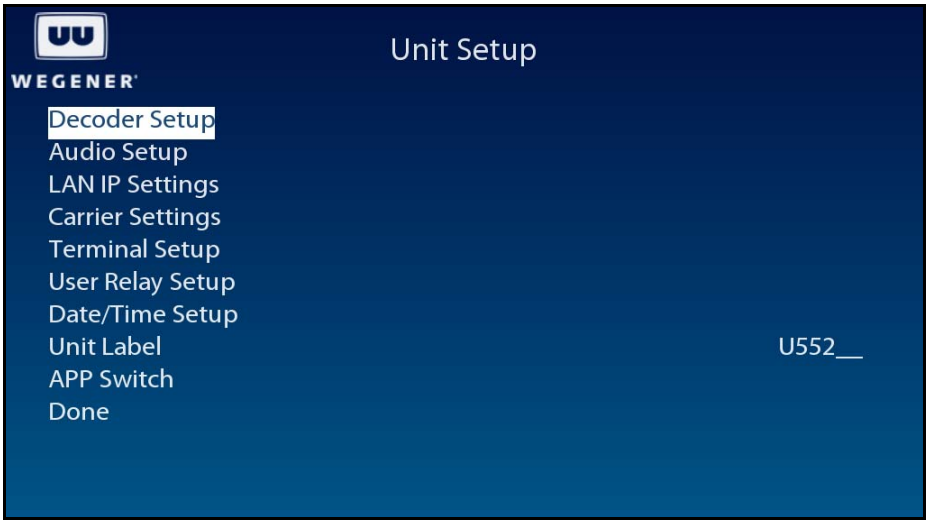


Unit Setup screen

Use following steps to display **Unit Setup** screen on the OSD menu:

1. Press any push-button on the front-panel to display the **Main Menu**.
2. Press the down arrow button to select **Advanced Setup**.
3. Press **Enter**.
4. Press the down arrow button to select **Unit Setup**.
5. Press **Enter**.
6. View the details as shown in the **Figure 3.12**.

Figure 3.12: iPump 562 OSD Unit Setup



The following options are available for setting the unit for operation:

- Decoder Setup
- Audio Setup

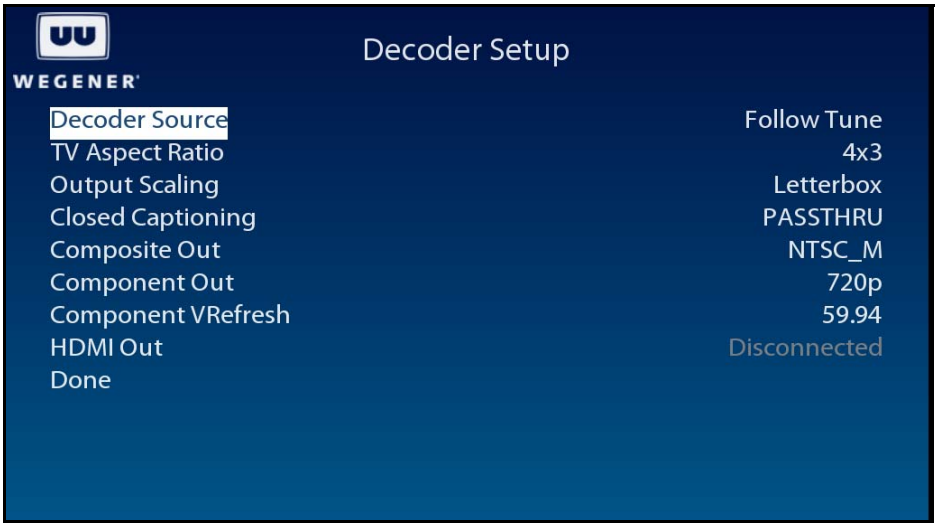
- LAN IP Networking
- Carrier Settings
- Terminal options
- User Relay
- Date and Time information
- Unit Label settings
- Switch Application
- Set Video Decoder options

Set Decoder Options

Use following steps to display **Decoder Setup** screen on the OSD menu:

1. Navigate to the Unit Setup screen, see **Unit Setup screen** on page 23.
2. Press the down arrow button to select **Decoder Setup**.
3. View the details as shown in **Figure 3.13**.

Figure 3.13: iPump 562 OSD Decoder Setup



Use the **Decoder Setup** screen to set and display the decoder options.

Table 3.7: Video Decoder Options

Option	Possible values	Comments
Decoder Source	Follow Tune (currently selected RF source and program #) or Off (no A/V output)	Controls source of input transport stream for the primary A/V decoder to play. The source can be either Multicast UDP from Satellite/RF or Multi/Unicast UDP from LAN/ETHERNET
TV Aspect Ratio	4x3 (Traditional TV) 16x9 (Wide screen TV) 14x9 (CiniView II)	Allows the receiver to automatically correct a mismatch in the aspect ratio of the TV to the content being displayed.
Output Scaling	Letterbox (black bars either at top/bottom or at sides), Pan/Scan (display may be off screen)	Optimizes viewing quality if the content does not match the TV Aspect Ratio. In Pan/Scan mode, improvement in viewing experience depends on the source content.
Closed Captioning	PASSTHRU (ntsc/pal) or CC1:4 (EIA-608) orDTV (EIA-708-B)	Sets the option to render subtitling information in different formats including Divicom.

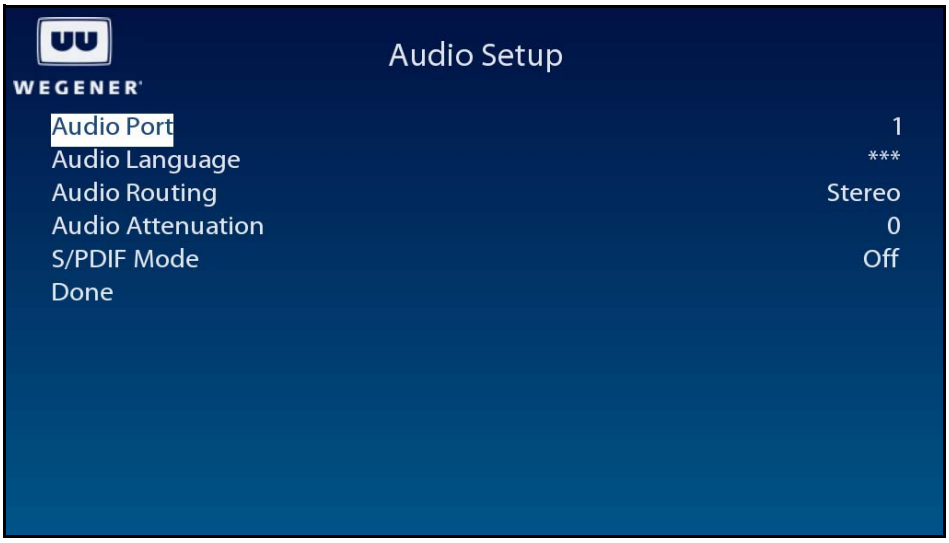
Option	Possible values	Comments
Composite Out	NTSC_M, NTSC_J, PAL/50 or PAL/60	Selects video output format
Component Out	480i, 480p, 576i, 576p, 720p or 1080i	Selects video output format. When a DVI/HDMI device is connected, the mode shall be automatically set to Slave.
Component V-Refresh	50 or 60 or 59.94	Configures the video/vertical refresh rate
HDMI Out	-	Displays current display mode of the DVI/HDMI device after EDID negotiation.

Setup Audio

Use following steps to display **Audio Setup** screen on the OSD menu:

1. Navigate to the **Unit Setup** screen, see **Unit Setup screen** on page 23.
2. Press the down arrow button to select **Audio Setup**.
3. View the details as shown in **Figure 3.15**.

Figure 3.14: iPump 562 OSD Audio Setup



Use the **Audio Setup** screen to set and display the audio output options.

Table 3.8: Audio Output Options

Option	Possible values	Comments
Audio Port	1 or 2	
Audio Language	A01 or ***	
Audio Routing	Stereo or Left/Right on both	May be used for two languages
Audio Attenuation	0 through 20	
S/PDIF Mode	Passthru, Linear PCM or Off	

Set LAN-based Decode options

Use following steps to display **Decoder Source** screen on the OSD menu:

1. Navigate to the **Decoder Setup** screen
2. Press the up or down arrow buttons to select **Decoder Source**.
3. Press **Enter**.
4. Press the up or down arrow buttons to select either **LAN-Multicast** or **LAN-Unicast**.
5. Press **Enter**.
6. Select **Activate Settings**.
7. Press **Enter**.

Figure 3.15: iPump 562 OSD Decoder Source

Use the **Decoder Source** screen to set and display the LAN Decode options.

Table 3.9: LAN Decode Options

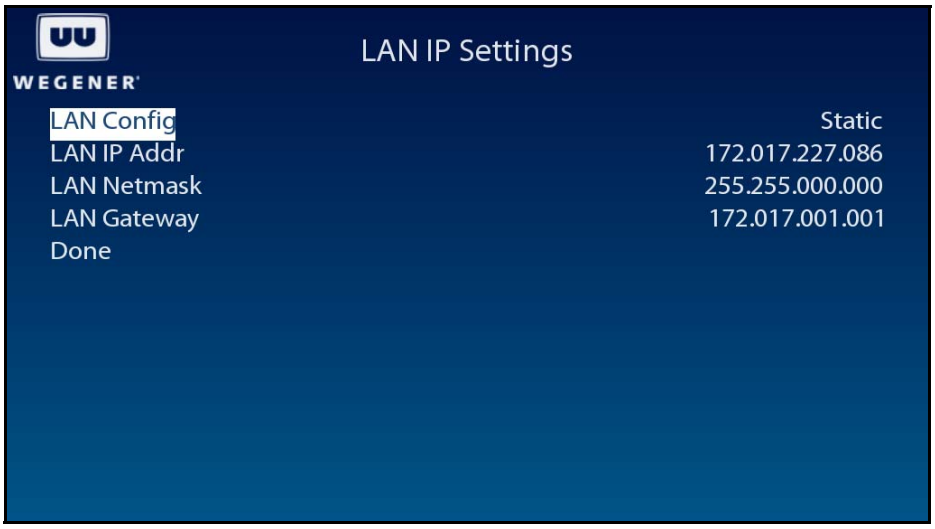
Option	Possible values
IP-Address	Multicast or Unicast IP Address
IP-Port Number	The corresponding IP Port number
Audio Routing	Stereo or Left/Right on both
Audio Attenuation	0 through 20
S/PDIF Mode	Passthru, Linear PCM or Off

Set LAN IP Networking options

Use following steps to display **LAN IP Setup** screen on the OSD menu:

1. Navigate to the **Unit Setup** screen, see **Unit Setup screen** on page 23.
2. Press the down arrow button to select **LAN IP Setup**.
3. View the details as shown in **Figure 3.16**.

Figure 3.16: iPump 562 OSD LAN IP Setup



Use the **LAN IP Setup** screen to set and display the networking configuration.

Table 3.10: Networking Configuration Settings

Option	Possible values	Comments
LAN Configuration	Static or DHCP	
LAN IP Address	-	IP Address
LAN Netmask	-	IP Net-mask
LAN Gateway	-	IP Gateway Address

Set Terminal options

Use following steps to display **Terminal Setup** screen on the OSD menu:

1. Navigate to the **Unit Setup** screen, see **Unit Setup screen** on page 23.
2. Press the down arrow button to select **Terminal Setup**.
3. View the details as shown in **Figure 3.17**.

Figure 3.17: iPump 562 OSD Terminal Setup

Use the **Terminal Setup** screen to set and display the terminal options.

Table 3.11: Terminal Options

Option	Possible values
Console Baud-rate	2400, 9600, 19200, 38400, 57600, 115200

Set Printer Options

Use following steps to display **Printer Setup** screen on the OSD menu:

1. Navigate to the **Unit Setup** screen, see **Unit Setup screen** on page 23.
2. Press the down arrow button to select **Printer Setup**.
3. View the details as shown in **Figure 3.17**.

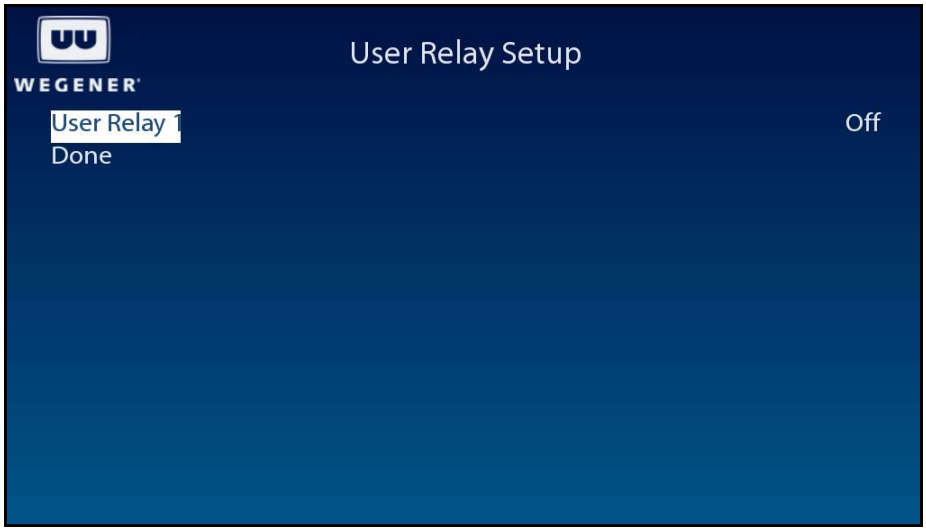
Figure 3.18: iPump 562 OSD Printer Options

Set User Relay

Use following steps to display **User Relay Setup** screen on the OSD menu:

1. Navigate to the **Unit Setup** screen.
2. Press the down arrow button to select **User Relay Setup**.
3. View the details as shown in **Figure 3.19**

Figure 3.19: iPump 562 OSD User Relay Setup



Use the **User Relay Setup** screen to set the User Relay Setup options.

Table 3.12: User Relay Setup Options

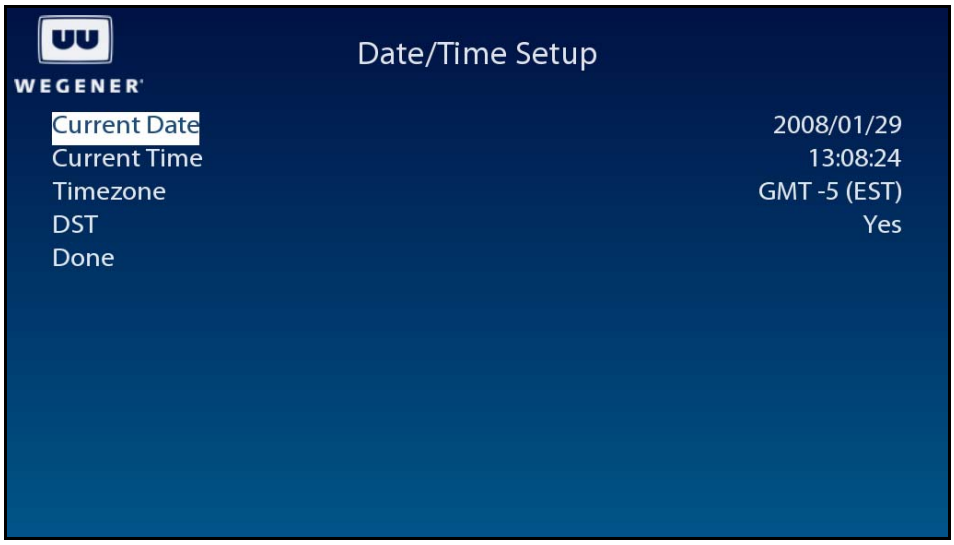
Option	Possible values
User Relay 1	On/Off

Set Date and Time information

Use following steps to display **Date/Time Setup** screen on the OSD menu:

1. Navigate to the **Unit Setup** screen, see **Unit Setup screen** on page 23.
2. Press the down arrow button to select **Date/Time Setup**.
3. View the details as shown in **Figure 3.19**

Figure 3.20: iPump 562 OSD Date/Time Setup



Use the **Date/Time Setup** screen to set and display the date and time information.

Table 3.13: Date and Time Information Settings

Option	Possible values
Current Date	Yyyy/mm/dd
Current Time	Hh:mm:ss
Time zone	All available…
DST	Yes / No

Set Unit Label

Use following steps to display **Unit Label Setup** screen on the OSD menu:

1. Navigate to the **Unit Setup** screen, see **Unit Setup screen** on page 23.
2. Press the down arrow button to select **Unit Label**.
3. Press **Enter**.
4. When the six-character label is selected, use the up/down and left/right buttons to set to a desired label. Press **Enter** to save the change. Use the left arrow button to go to the previous menu level.

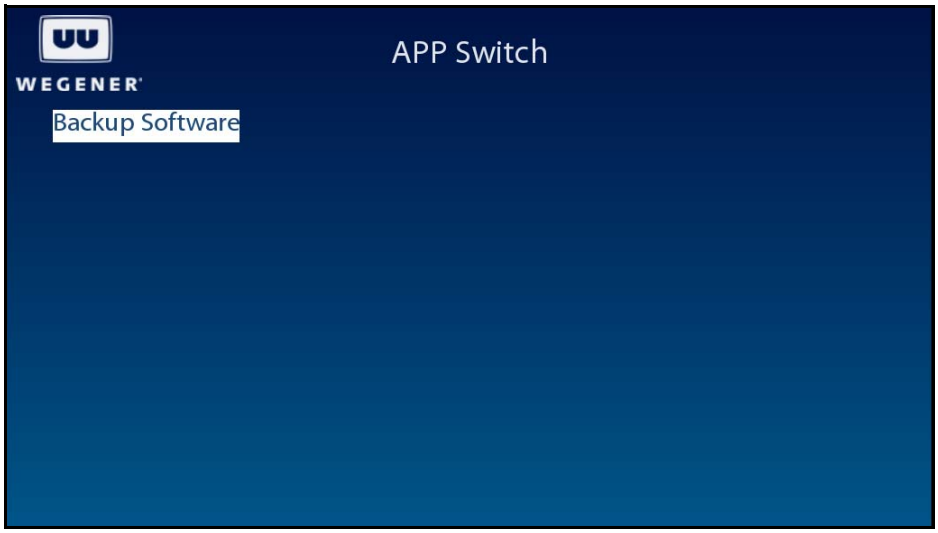
Switch Application (to different software version)

Use following steps to display **Application Switch** screen on the OSD menu:

1. Navigate to the **Unit Setup** screen, see **Unit Setup screen** on page 23.
2. Press the down arrow button to select **Switch Application**.
3. View the details as shown in **Figure 3.21**.
4. Use the **Application Switch** to run a backup version of the software on the unit. Upon selecting the Backup Software by pressing **Enter**, the system restarts with the different software which is labeled as current. The previously run software is labeled

backup. Use the **Version Information** screen to find out about the software versions installed in the system.

Figure 3.21: iPump 562 OSD Application Switch



Monitor Status Information

The following types of status information are available for viewing:

- Signal Quality
- Current Quality
- History This Setting
- Elapsed Times

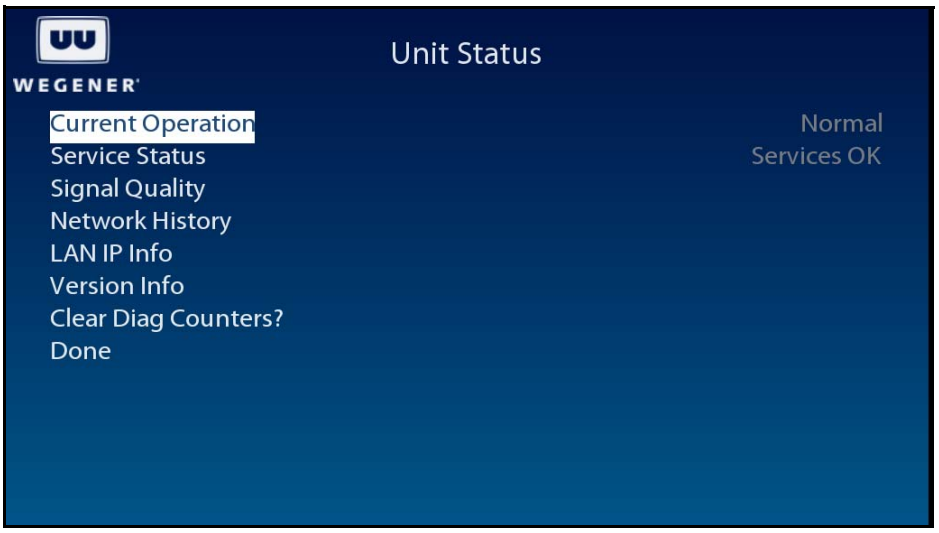
Unit Status screen

Use following steps to display the **Unit Status** screen on the OSD menu:

1. Press any push-button on the front-panel to display the **Main Menu**.
2. Press the down arrow button to select **Advanced Setup**.
3. Press **Enter**.
4. Press the down arrow button to select **Unit Status**.
5. Press **Enter**.
6. View the details as shown in **Figure 3.22**.

Note: When the unit is locked to a carrier and playing video/audio, the Current Operation is Normal and Service Status is OK.
If carrier is not locked, Service Status can be **Acquiring Transport**.

Figure 3.22: iPump 562 OSD Unit Status



Signal Quality screen

Use following steps to display the **Signal Quality** screen on the OSD menu:

1. Navigate to the **Unit Status** screen, see **Unit Status screen** on page 31.
2. Press the down arrow button to select **Signal Quality Status**.
3. View the details as shown in **Figure 3.23**.

Figure 3.23: iPump 562 OSD Signal Quality Status

Current Quality screen

Use following steps to display the **Current Quality** screen on the OSD menu:

1. Navigate to the **Signal Quality** screen, see **Signal Quality screen** on page 32.

2. Press the down arrow button to select **Current Quality**.
3. View the details as shown in **Figure 3.24**.

Figure 3.24: iPump 562 OSD Current Quality

History This Setting screen

Use following steps to display the **History This Setting** screen on the OSD menu:

1. Navigate to the **Signal Quality** screen. See **Signal Quality screen** on page 32 **OR** from a **Signal Quality** sub-screen, press the left arrow button to go back to the **Signal Quality** screen.
2. Press the down arrow button to select **History This Setting**.
3. Press **Enter**.
4. View the details as shown in **Figure 3.25**.

Figure 3.25: iPump 562 OSD History This Setting

Elapsed Times screen

Use following steps to display the **Elapsed Times** screen on the OSD menu:

1. Navigate to the **Signal Quality** screen. See **Signal Quality screen** on page 32
   OR from a **Signal Quality** sub-screen, press the left arrow button to go back to the **Signal Quality** screen.
2. Press the down arrow button to select **Elapsed Times**.
3. Press **Enter**.
4. View the details as shown in **Figure 3.26**.

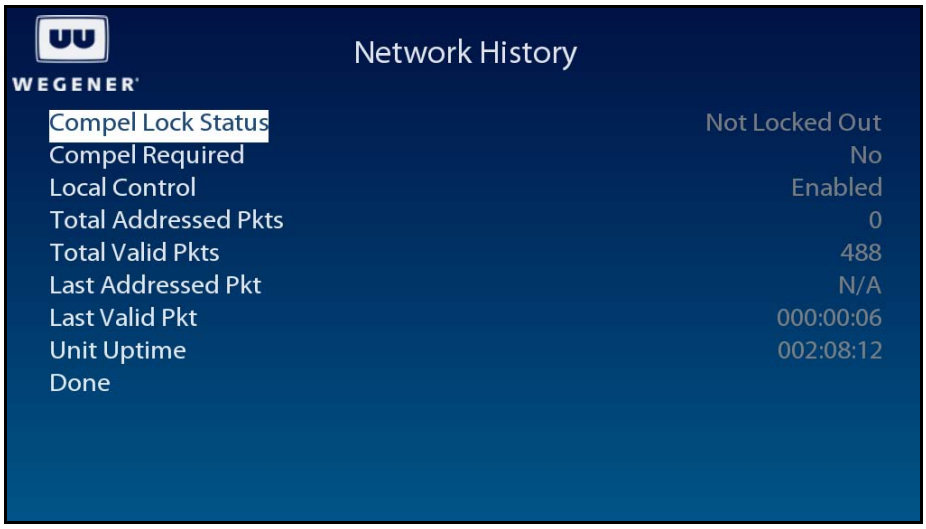
Figure 3.26: iPump 562 OSD Elapsed Times

Query Network History

Use following steps to display the **Network History** screen on the OSD menu:

1. Navigate to the **Unit Status** screen, see **Unit Status screen** on page 31.
2. Press the down arrow button to select **Network History**.
3. Press **Enter**.
4. View the details as shown in **Figure 3.27**.

Figure 3.27: iPump 562 OSD Network History

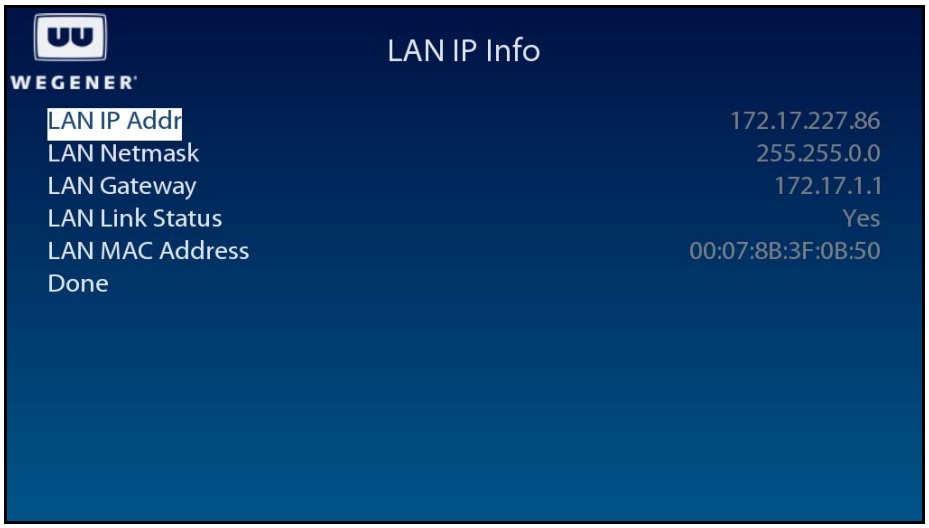


Display LAN IP Network information

Use following steps to display **LAN IP Info** screen on the OSD menu:

1. Navigate to the **Unit Status** screen, see **Unit Status screen** on page 31.
2. Press the down arrow button to select **LAN IP Info**.
3. Press **Enter**.
4. View the details as shown in **Figure 3.28**.

Figure 3.28: iPump 562 OSD LAN IP Info



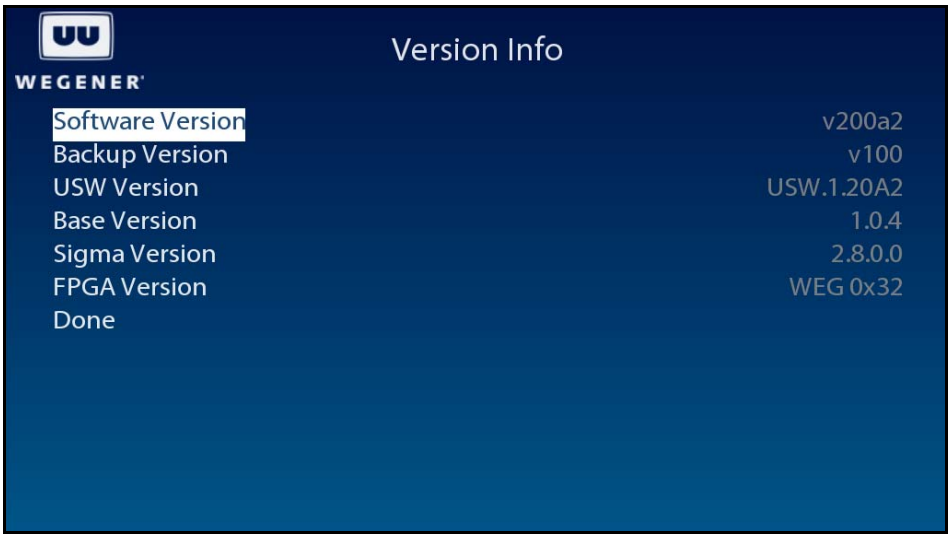
Find Software Version information

Use following steps to display **Version Info** screen on the OSD menu:

1. Navigate to the **Unit Status** screen, see **Unit Status screen** on page 31.
2. Press the down arrow button to select **Version Info**.

3. Press **Enter**.
4. View the details as shown in **Figure 3.29**.

Figure 3.29: iPump 562 OSD Version Info



Clear Statistics used for diagnosis

Use following steps to display **Clear Signal Counters** screen on the OSD menu:

1. Navigate to the **Unit Status** screen, see **Unit Status screen** on page 31.
2. Press the down arrow button to select **Clear Signal Counters**.
3. To reset the statistical information for diagnosis, press **Enter.**
4. View the details as shown in **Figure 3.30**.

Figure 3.30: iPump 562 OSD Clear Signal Counters

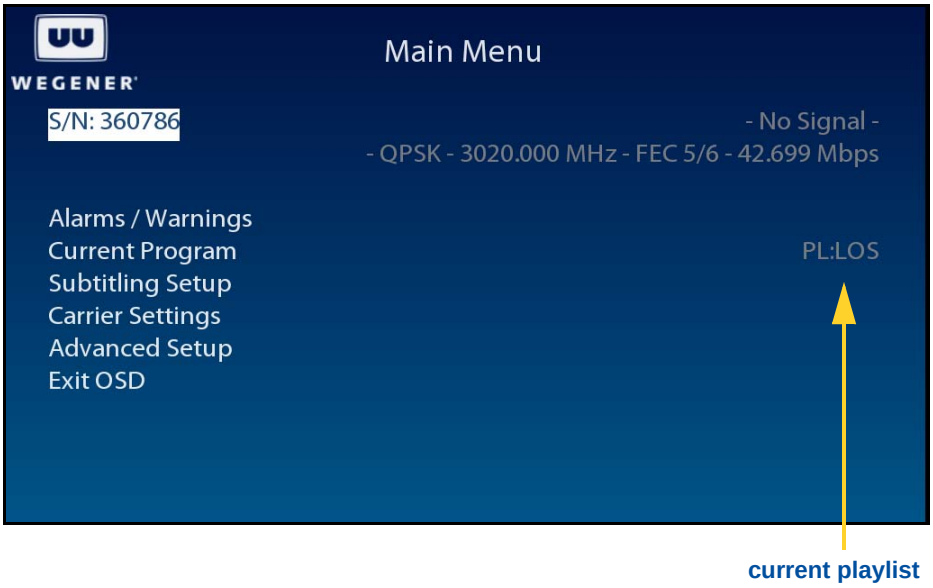
Play out play lists of media files

Play lists of media files can be sent to **iPump 562** from **Compel** uplink using Assured Files Delivery (AFD) for playing immediately upon receipt (Un-timed). The OSD **Main Menu** screen displays name of the play list currently being played under **Current Program**.

Use following steps to display **Play out play lists of media files** screen on the OSD menu:

1. Navigate to the **Unit Status** screen, see **Unit Status screen** on page 31.
2. Press the down arrow button to select **Clear Signal Counters**.
3. To reset the statistical information for diagnosis, press **Enter.**
4. View the details as shown in **Figure 3.30**.

Figure 3.31: iPump 562 OSD Clear Signal Counters



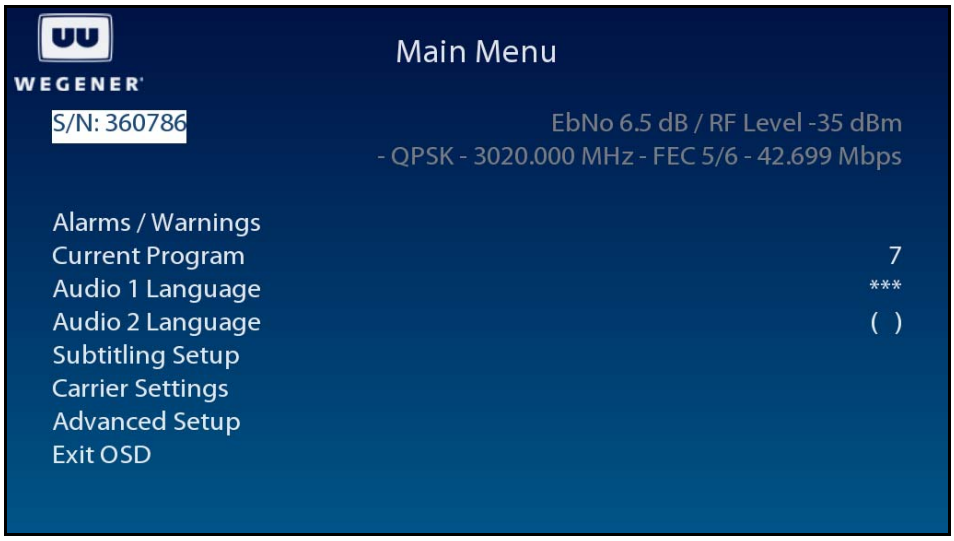
3.3 View Alarms/Warnings

Generally, the IRD functions by producing an Audio/Video/Data output. In some cases, such as sudden loss of carrier, attempting to view an unauthorized program or RF level is too low, an Alarm or Warning shall be generated. Usually, user intervention is necessary to resolve an Alarm or a Warning. In addition to flashing the front-panel LED, more information can be found using the OSD screens. A list of Alarms and Warnings can be found in **Section 3.1 Controlling and Monitoring**.

When an Alarm or a Warning condition arises, the **Main Menu** OSD screen shall have an entry to display Alarms/Warnings.

1. Press any push-button on the front-panel to display the **Main Menu**.

Figure 3.32: iPump 562 OSD Main Menu



2. Press the down arrow button to select **Alarms/Warnings**.
3. Press **Enter**.

Figure 3.33: iPump 562 OSD Alarms / Warnings

4. Select **Display Current Warnings**.
5. Press **Enter**.

Figure 3.34: iPump 562 OSD Display Current Warnings

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CHAPTER 4 SEARCH FUNCTIONS

4.1 Perms/Temps/Searching & Settings

The term "settings" is used throughout this document and includes the following set of parameters:

Table 4.1: Settings Parameters for the iPump 562

Setting	Description
Modulation	S28PSK/S2QPSK/QPSK
RF Switch/Pol	If IRD is configured for Universal LNB, H or V are valid. Specify RF port 1-4 for four-port RF configuration.
Carrier	The downlink frequency specified in MHz with up to two decimal places. This value's absolute difference with the LNB LO frequency is used as specified in the technical specifications. (e.g. 3720.00 MHz).
Data_rate	Data rate is specified in Mbps with up to three decimal places. See the technical specifications for the applicable range. (e.g. 41.470 Mbps).
Fec_rate	The inner FEC code ratio and can have one of the values specified in the technical specifications. (e.g. 3/4).
Tag_site	Value of 0-14 (15 is a special NO Tag case) specifying the location of this carrier's tag frequency.
[program]	The program number from the MPEG Program Association Table. This must be number from 1 to 65535. If omitted or an '*' is entered, the unit will select the first available program stream. Note that this number points to the PID for the Program Map Table for what we might call a "service" (a single video channel and associated audio signals).
Label	A string of characters for identification.

The IRD is acting on one of three groups of settings at any given time, each of which is described in **Table 4.2**

Table 4.2: iPump 562 Settings Groups

Settings Group	Description
Temp	These settings are entered via **Compel** or the TEMP / TEMPCH terminal commands. The unit is said to be inserting when it is configured to the temp settings. The maximum length of an insert is approximately 18 hours (65535 seconds). An insert terminates when: 1. it times out, 2. an ABORT command is received, 3. power is cycled, or 4. an invalid header is seen. Any Temp commands received while the receiver is currently inserting are ignored. If a Perm command is received while inserting, the perm settings are updated but not acted on until the insert is terminated.
Perm	The perm settings are entered via **Compel**, the PERM / PERMCH terminal, or OSD Carrier Select screen, or automatically from within a search mode. (See below.) The perm settings are the only settings group that are stored in NVRAM.
Search	The search settings are active while in Carrier Search or Header Search. When the unit finds what it is looking for in the search mode, it copies the search settings to the perm settings. These are then considered to be the active settings.

4.2 Settings Table (or Search Table)

This is an internal database retained in non-volatile memory (unaffected by loss of power). It contains a list of alternate carrier settings. Each valid entry is a complete description of a carrier/program setting (as used in a Perm command). This list is entered at customer request at the factory, and may be edited using **Compel** commands or ADDS and DELS terminal commands. The entries are referred to as "Table Entries" or "Search Settings Entries", etc.

The Settings Table is typically used for one of two possible operations. The first is for local users to quickly pre-program carrier/program combinations and tune the IRD to one of them. The second is as a source of alternate fallback carriers for times when the "normal" carrier is lost or has a failure in its **Compel** stream.

4.3 Signal Quality Monitoring

The **iPump 562** provides monitoring of different parameters of RF signal quality while tracking a carrier.

Note: Beyond 15 dB, Eb/No readings are not accurate. For the following inner FEC ratios, display any Eb/No values above the limits shown as >xx dB: R=1/2, Eb/No >14.0 dB; R=2/3, Eb/No>13.5 dB; R=3/4, Eb/No>13.0 dB; R=5/6, Eb/No>12.5 dB; R=7/8, Eb/No>12.0 dB. Note that margin may also “top out” as a >yy dB value also.

Table 4.3: Signal Quality Information

Parameter	Description
Modulation	8PSK/QPSK/S1
RF Switch/Pol	If IRD is configured for Universal LNB, H or V are valid. Specify RF port 1-4 for four-port RF configuration.
Carrier	The downlink frequency specified in MHz with up to two decimal places. This value's absolute difference with the LNB LO frequency is used as specified in the technical specifications.
Data_rate	Data rate is specified in Mbps with up to three decimal places. See the technical specifications for the applicable range.
Fec_rate	The inner FEC code ratio and can have one of the values specified in the technical specifications.
Tag_site	Value of 0-14 (15 is a special NO Tag case) specifying the location of this carrier's tag frequency
[program]	The program number from the MPEG Program Association Table. This must be number from 1 to 65535. If omitted or an '*' is entered, the unit will select the first available program stream. Note that this number points to the PID for the Program Map Table for what we might call a "service" (a single video channel and associated audio signals).
Label	A string of characters for identification.

4.4 Frequency Tagging

General Rules

Frequency Tagging is a mechanism that is used to ensure that an IRD is locked to desired carrier settings. Sometimes, due to minor offsets in LNB and frequency errors, tuning may be off by a couple of MHz. To prevent locking to some other near by (adjacent) carrier while looking for an intended carrier, the acquired carrier contains "frequency tags." These tags are inserted in **Compel** control stream at the uplink to identify the intended carrier frequency. Traditionally, the tags have been sent at a rate of every 100 or 125 ms.

The **iPump 562** supports both single and multiple tags. A carrier settings with "Tag Site" number, specifies which of the possible tags the IRD need to use. The **iPump 562** allows for Tag Site designations from 0 to 15, inclusive. The tag '15' is reserved for an exception. If the Carrier Setting shows Tag Site '15', the Carrier Tags are not required.

The SCPC Frequency Tag Protocol Functional Specification (WCI #16803) gives more details.

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CHAPTER 5 CUSTOMER SERVICE

5.1 Warranty

The following warranty applies to all **Wegener Communications** products including the **iPump 562**:

All **Wegener Communications** products are warranted against defective materials and workmanship for a period of one year after shipment to customer. **Wegener Communications**' obligation under this warranty is limited to repairing or, at **Wegener Communications**' option, replacing parts, subassemblies, or entire assemblies. **Wegener Communications** shall not be liable for any special, indirect, or consequential damages. This warranty does not cover parts or equipment which have been subject to misuse, negligence, or accident by the customer during use. All shipping costs for warranty repairs will be prepaid by the customer. There are no other warranties, express or implied, except as stated herein.

5.2 Technical Support

If the unit should fail to perform as described, if you need help resolving problems with your **iPump 562**, or for questions about obtaining service for your **iPump 562**, please contact **Wegener Communications Customer Service** at (**770) 814-4057**, Fax **(678) 624-0294**, or e-mail **service@wegener.com**.

To return a product for service:

1. Obtain a **Return Material Authorization (RMA)** number by completing and faxing a copy of the **RMA Request Form** to **(678) 624-0294**. Or you may e-mail the same information to: **service@wegener.com**.
2. To help us identify and control returned units, plainly write the RMA number on the outside of the product-shipping container. This will help us return your unit to you as quickly as possible.
3. Return the product, freight prepaid, to the address below:

Service Department RMA# _____
Wegener Communications, Inc.
359 Curie Drive

Alpharetta, GA 30005

Note: All returned material must be shipped freight prepaid. C.O.D. shipments will not be accepted.

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APPENDIX 1 TERMINAL DIAGTERM COMMANDS

The iPump 562 provides command-line interface, Diagterm. The diagterm can be accessed either using a RS-232 serial port or logging through LAN IP interface using Linux. The diagterm commands are used to control or monitor the IRD operations. This method may be used in conjunction other ways to control or monitor, namely, **Compel** and OSD.

Apx 1.1 Diagterm Group Commands

Some of the Diagterm terminal commands are grouped under common group name. The commands belonging to a group perform related functions. Following is a list of groups and their commands along with synopsis for each. A general syntax for the group command is:

```
OK> <group> <command> [arguments]
```

Use Help to find more information on the command, its options, etc. For example:

```
OK> help rp
Help for group [ rp ]:
========= [ Commands ] ===================
ca      :       Conditional Access
rec     :       Report Auto Recovery status
rf      :       Report RF Parameters

OK> rp rf
....
```

Table Apx 1.1: Diagterm Group Commands

Group Name: rp	
Command	**Synopsis**
ca	Report Conditional Access Information
rec	Report Recovery Status
rf	Report RF Parameters
Group Name: r	
Command	**Synopsis**
c	Report Carrier Status
st	Report Preset Table
s	Report Settings Status
p	Report Configuration Information
ns	Report Network Services Status
http	Report HTTP Information
g	Report **Compel** Group Table
r	Report Relays Status

groups	Report List of Groups
Group Name: rdbs	
Command	**Synopsis**
report	Report RBDS Status
test	Send test message to RBDS port "test <port> <message>
Group Name: lan	
Command	**Synopsis**
ip	Set Static LAN IP Address of the Unit
gateway	Set Network Gateway for LAN Interface
mode	Set LAN Addressing Mode (DHCP, STATIC,WEG)
setup	Set IP Address and Subnet mask for the LAN port
subnet	Set static LAN subnet mask
Group Name: output	
Command	**Synopsis**
aspect	Set output aspect ratio of the display device 4x3;16x9;14x9
cc	Set closed captioning mode [tv|cc1|cc2|cc3|cc4|dtv]
scaling	Set output display scaling mode [letterbox|panscan]
Group Name: sigma	
Command	**Synopsis**
ver	Print version information
Group Name: http	
Command	**Synopsis**
proxy	Set the proxy server for http
Group Name: snmp	
Command	**Synopsis**
community	Set SNMPV2 Community Access String

Apx 1.2 Diagterm Individual Commands

The diagterm individual commands are not grouped together under common groups. These commands perform functions such as setting audio attenuation or turning on LNB power.

Following is a list of commands along with synopsis. A general syntax for the group command is:

```
OK> <command> [arguments]
```

Use Help to find more information on a specific command, its options, etc. For example:

```
OK> help snr
Snr: margin_offset – Set SNR margin offset
     Margin_offset: 1.0 – 10.5
```

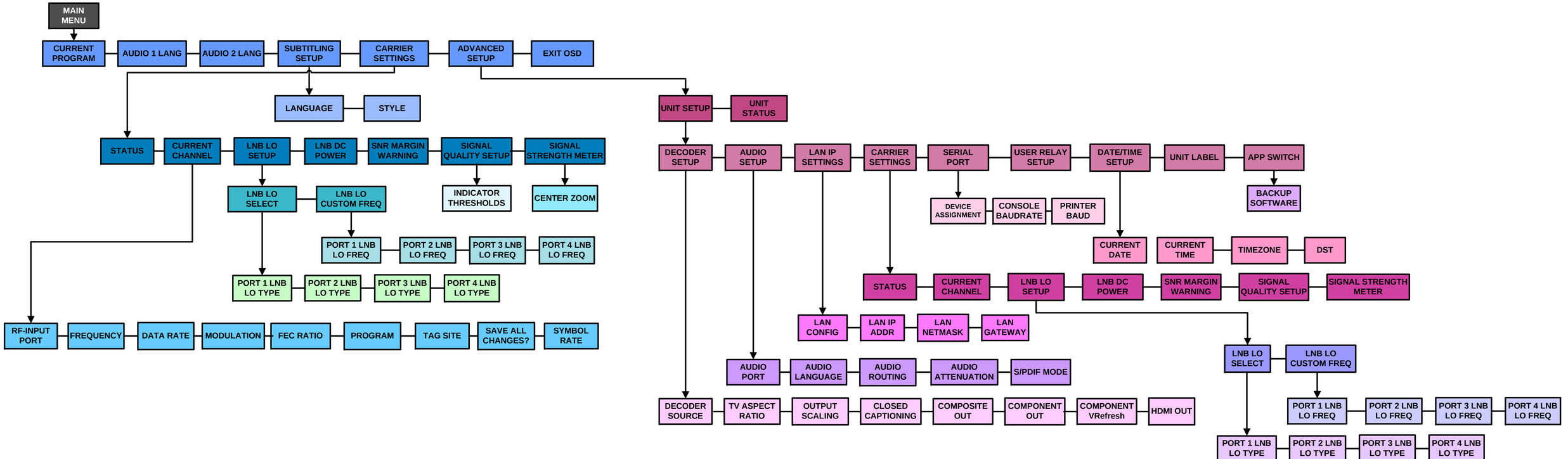
Table Apx 1.2: Diagterm Individual Commands

Command	Synopsis
abortrec	Tune to Last Successful (S) or Last commanded (C)
abort	Abort Temporary Insert
adds	Add Location Settings
ap	Audio Program
ap2	Audio Program 2
audatten	Audio Attenuation
audroute	Set Audio Routing (S-Stereo; 1 or 2 Left/Right; R-Reverse Stereo)
contentaccess	Set access level for content on HDD (Read-only or Full)
dels	Delete Location Settings
errors	Set Alarm Threshold
ifconfig	Display current ETHERNET device(s) configuration
lnbpwr	Turn LNB Power ON/OFF
lnbselect	Set LNB Mode UNIV/ASTRA or STD/LO
margin	Set margin offset (Range: 1.0 - 10.5 dB)
movep	Move Preset entry (source and destination entry #'s)
permch	Set perm settings from search table (Position: 1-48)
perm	Set Perm Settings
port	Select RBDS port
re	Turn solid-state Relays On or Off
savep	Save current Settings to a Preset entry
Service	Enable or Disable named service
setlnb	Set LNB LO Frequency
settimeout	Set Timeout (Source #2-5 and time)
set	Set Individual Carrier Parameters
snr	Set SNR margin offset

Command	Synopsis
spdif	Set SPDIF Mode
sp	Select default program for carrier (program #)
tempch	Set temp settings from settings table
temp	Set temp settings

APPENDIX 2 MENU TREE

The following page shows the LCD navigation for the **iPump 562**.


MAIN MENU
CURRENT PROGRAM
AUDIO 1 LANG
AUDIO 2 LANG
SUBTITLING SETUP
CARRIER SETTINGS
ADVANCED SETUP
EXIT OSD
LANGUAGE
STYLE
STATUS
CURRENT CHANNEL
LNB LO SETUP
LNB DC POWER
SNR MARGIN WARNING
SIGNAL QUALITY SETUP
SIGNAL STRENGTH METER
LNB LO SELECT
LNB LO CUSTOM FREQ
INDICATOR THRESHOLDS
CENTER ZOOM
PORT 1 LNB LO FREQ
PORT 2 LNB LO FREQ
PORT 3 LNB LO FREQ
PORT 4 LNB LO FREQ
PORT 1 LNB LO TYPE
PORT 2 LNB LO TYPE
PORT 3 LNB LO TYPE
PORT 4 LNB LO TYPE
RF-INPUT PORT
FREQUENCY
DATA RATE
MODULATION
FEC RATIO
PROGRAM
TAG SITE
SAVE ALL CHANGES?
SYMBOL RATE
UNIT SETUP
UNIT STATUS
DECODER SETUP
AUDIO SETUP
LAN IP SETTINGS
CARRIER SETTINGS
SERIAL PORT
USER RELAY SETUP
DATE/TIME SETUP
UNIT LABEL
APP SWITCH
DEVICE ASSIGNMENT
CONSOLE BAUDRATE
PRINTER BAUD
BACKUP SOFTWARE
CURRENT DATE
CURRENT TIME
TIMEZONE
DST
STATUS
CURRENT CHANNEL
LNB LO SETUP
LNB DC POWER
SNR MARGIN WARNING
SIGNAL QUALITY SETUP
SIGNAL STRENGTH METER
LAN CONFIG
LAN IP ADDR
LAN NETMASK
LAN GATEWAY
AUDIO PORT
AUDIO LANGUAGE
AUDIO ROUTING
AUDIO ATTENUATION
S/PDIF MODE
LNB LO SELECT
LNB LO CUSTOM FREQ
DECODER SOURCE
TV ASPECT RATIO
OUTPUT SCALING
CLOSED CAPTIONING
COMPOSITE OUT
COMPONENT OUT
COMPONENT VRefresh
HDMI OUT
PORT 1 LNB LO FREQ
PORT 2 LNB LO FREQ
PORT 3 LNB LO FREQ
PORT 4 LNB LO FREQ
PORT 1 LNB LO TYPE
PORT 2 LNB LO TYPE
PORT 3 LNB LO TYPE
PORT 4 LNB LO TYPE

APPENDIX 3 RMA REQUEST FORM

Apx 3.1 Return Materials Authorization Request Form

http://www.wegener.com/custservrma.htm

Figure Apx 3.1: RMA Request Form

E-mail: service@wegener.com **Fax: (678) 624-0294**

Company Name: _____

Bill-To Address: _____

_____

_____

_____

Ship-To Address: _____

_____

_____

Contact Name: _____

Phone # ( ) - Fax #: ( ) -

Complete Model #: _____

Serial #: _____

In Warranty: Yes ☐ No ☐

Problem: _____

_____

_____

_____

Additional Comments: _____

_____

_____

_____

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